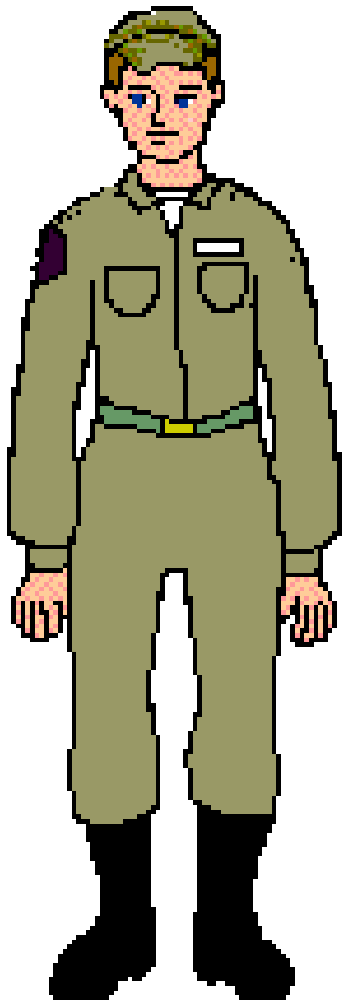
Armed Forces College of Medicine

AFCM

ANATOMY DEPARTMENT



UPPER LIMB

Nerve Injury II

By

Prof Azza Kamal

ILO

By the end of this lecture the student will be able to:

1. Describe the distribution of axillary and radial nerves.

2. Discuss the effects of injury of these two nerves.

3. Predict the deformity resulting from injury of these two nerves.

KEY

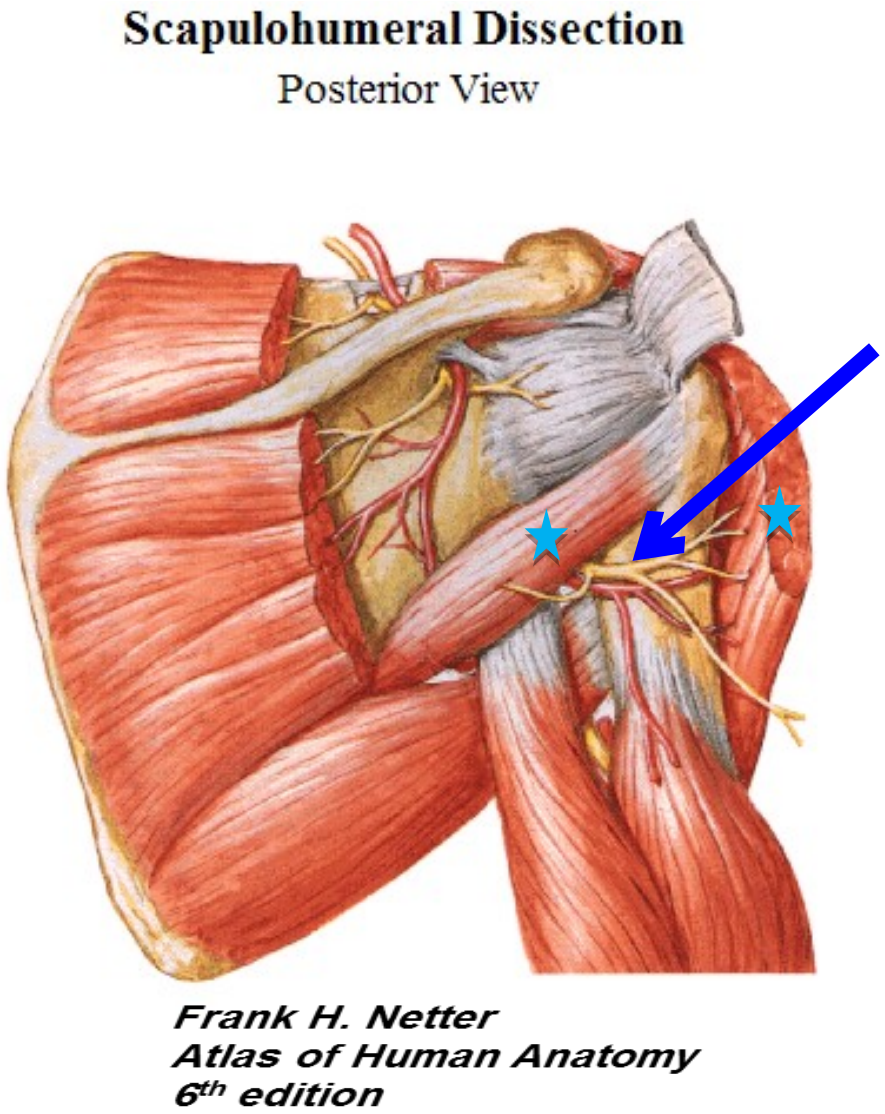
1. Branches of the axillary and radial nerves.
2. Effects of injury of these two nerves.
3. Deformity resulting from injury of these two nerves.

Axillary nerve injury

- **Axillary nerve C5,6 supplies 2 muscles:**

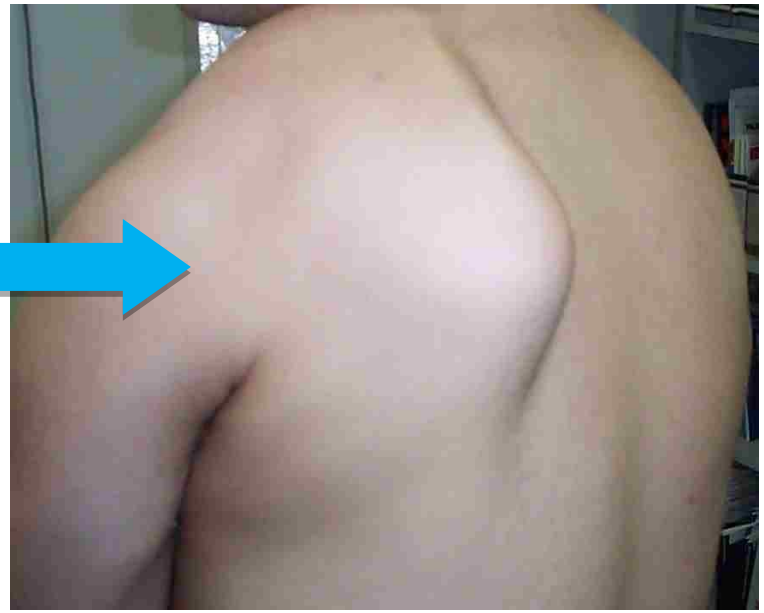
1. **Deltoid**
2. **Teres minor**

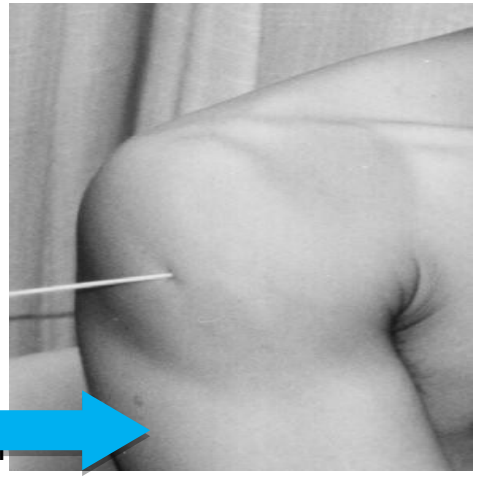
- **Axillary nerve could be injured in fractures of surgical neck of the humerus or in inferior dislocation of shoulder**



Results of axillary nerve injury

- **Paralysis of deltoid & teres minor flat shoulder & inability to abduct arm from 15° to 90°**
- **Loss of sensation over lower $^1/_2$ of deltoid**
- **S lateral supraclavicular nerves C 3,4 of deltoid is normal as it is supplied by .....**





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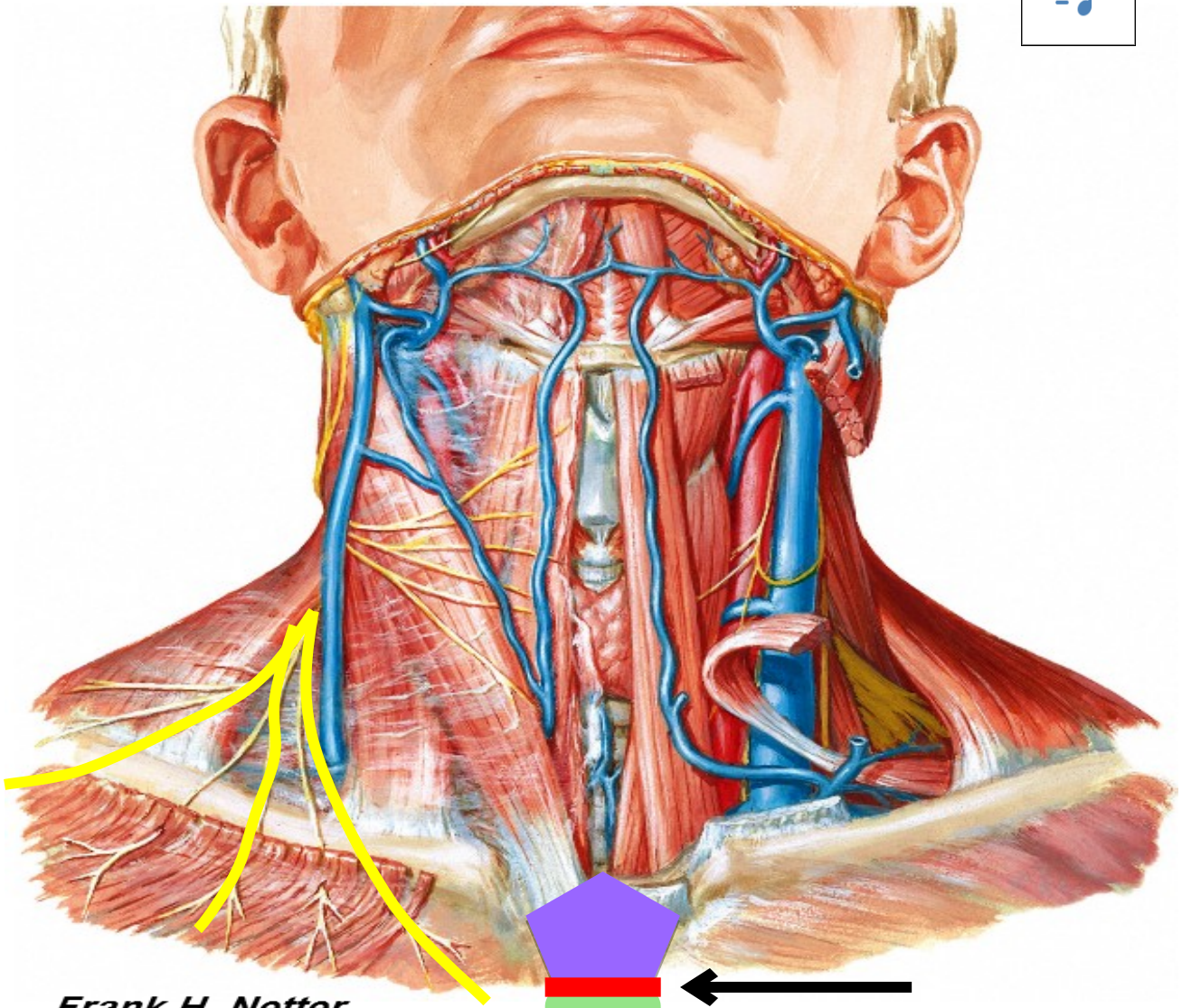
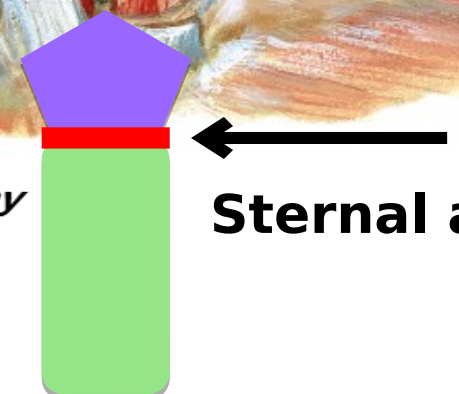
Cutaneous Nerve Supply of Pectoral Region:

- Supraclavicular nerves C3,4: medial, intermediate & lateral
- They descend infront of the clavicle to supply skin of pectoral region till level of the sternal angle.
- Lateral supraclavicular n supplies skin over upper ½ of deltoid.





Sternal angle

Radial Nerve Injury

Origin of Radial Nerve

Root value:
Ventral rami of C5,6,7,8 & T1.
(continuation of the posterior cord)

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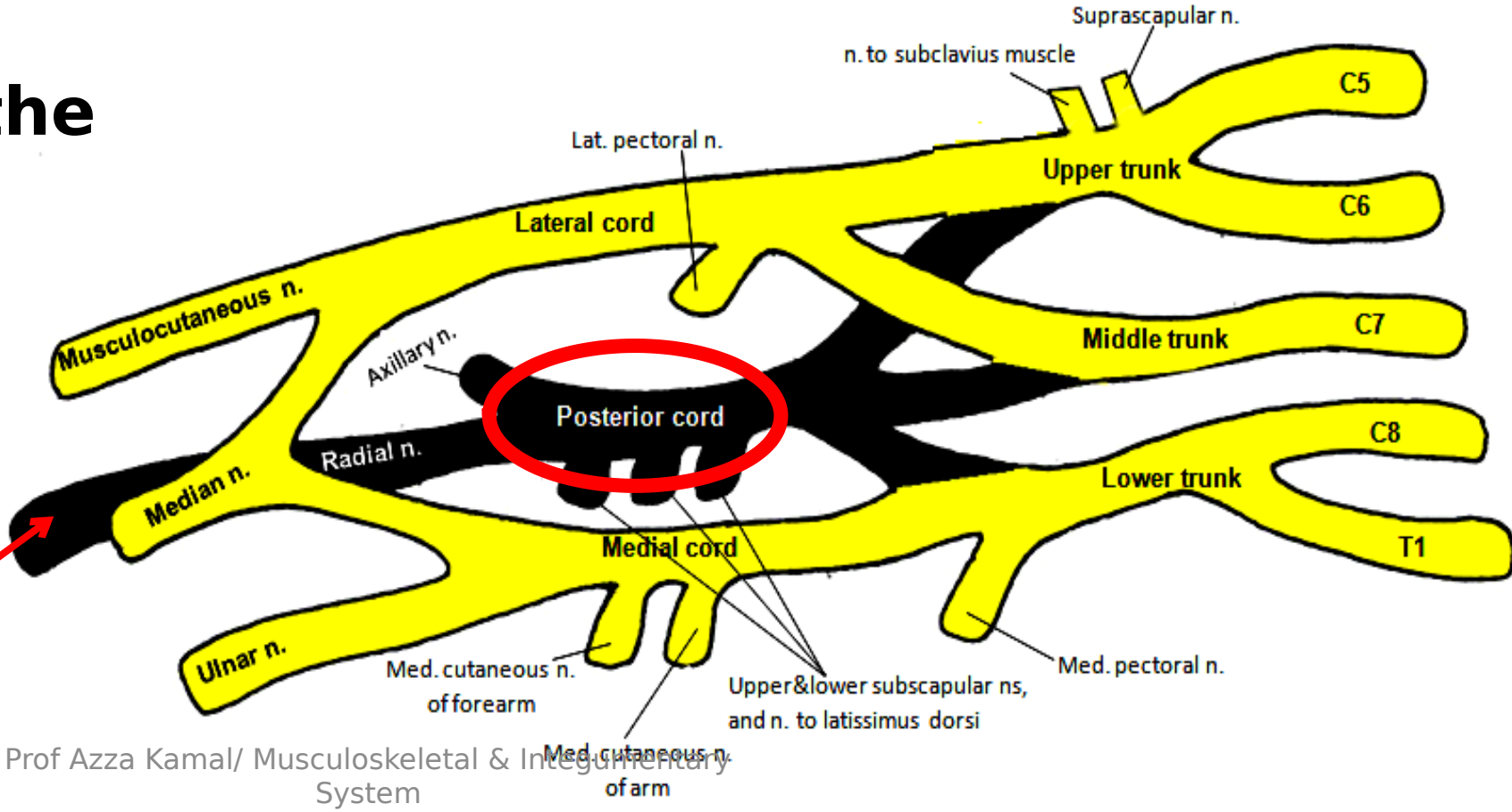
Posterior cord
$C_{5,6,7,8}, T_1$



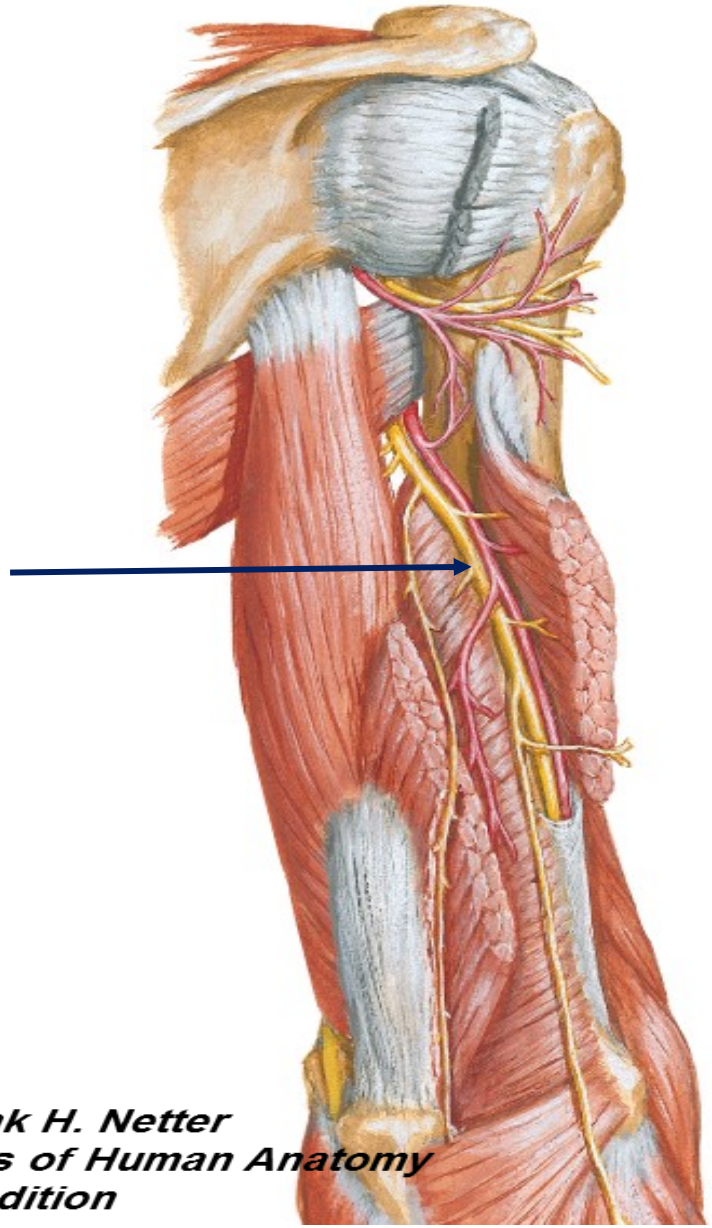
Radial Nerve

Let’s revise the anatomy of the radial nerve

1. **In Axilla**
2. **In lower triangular space**
3. **In spiral groove**
4. **Ends infront of lateral epicondyle of humerus by dividing into:**

a) **Superficial terminal branch runs lateral to radial artery in forearm undercover of brachioradialis**

b) **Deep terminal branch (Posterior interosseous) pierces supinator and supplies extensors of forearm Except**



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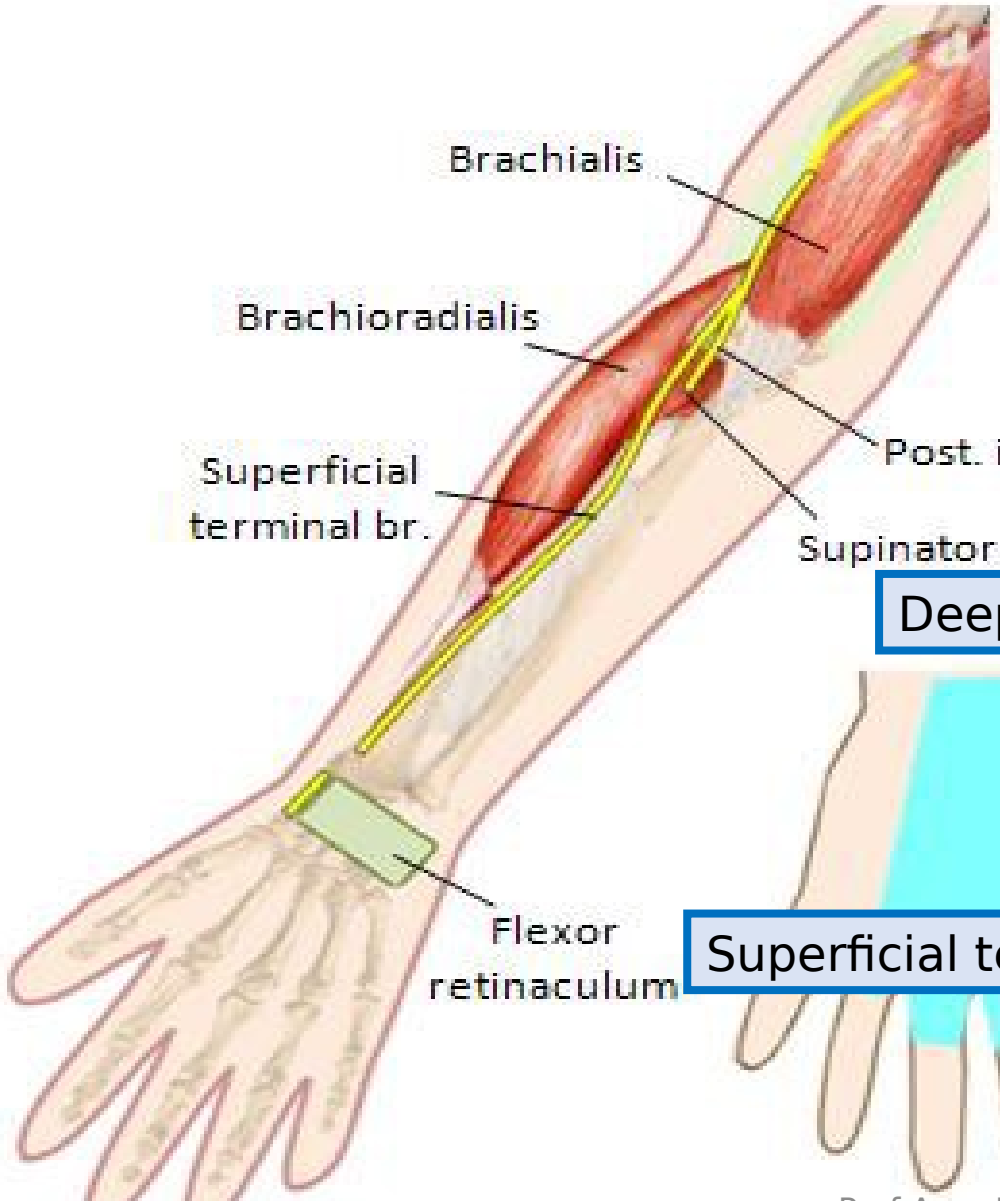
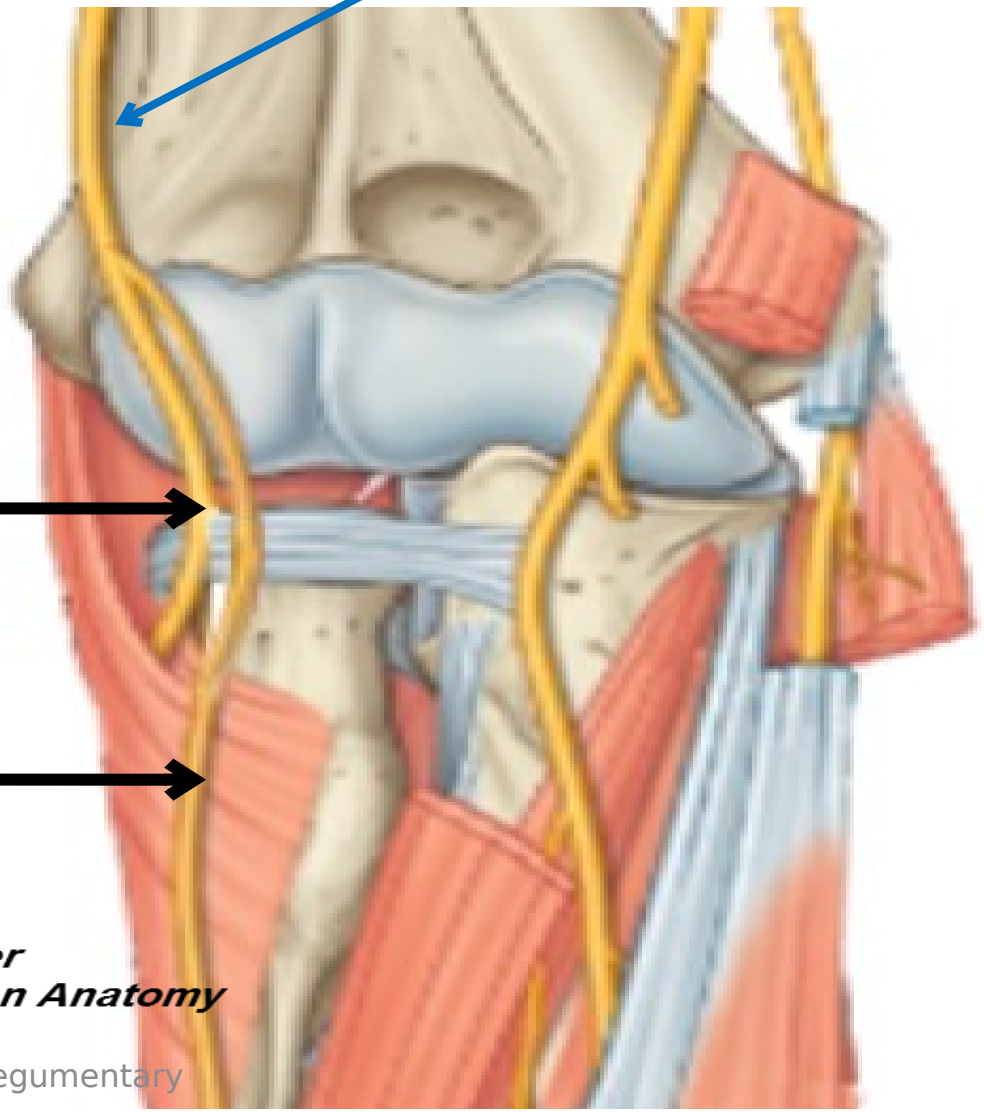
Radial n.



Deep terminal branch

Superficial terminal branch



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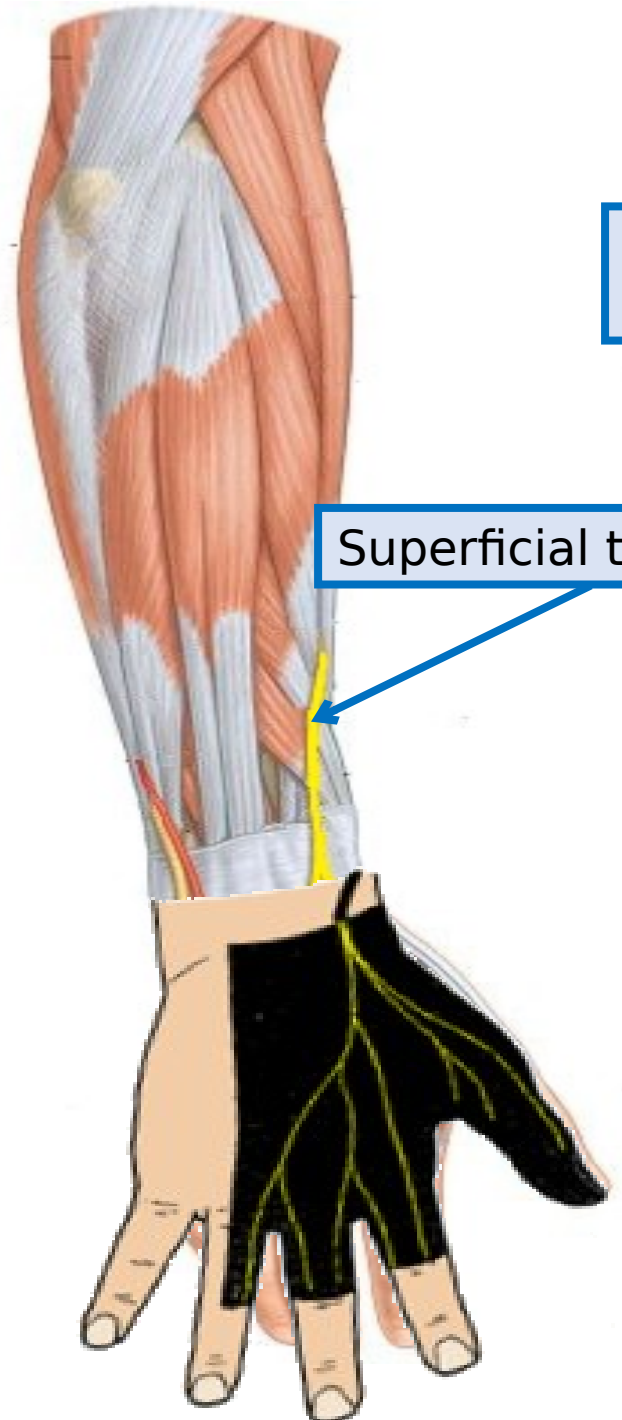
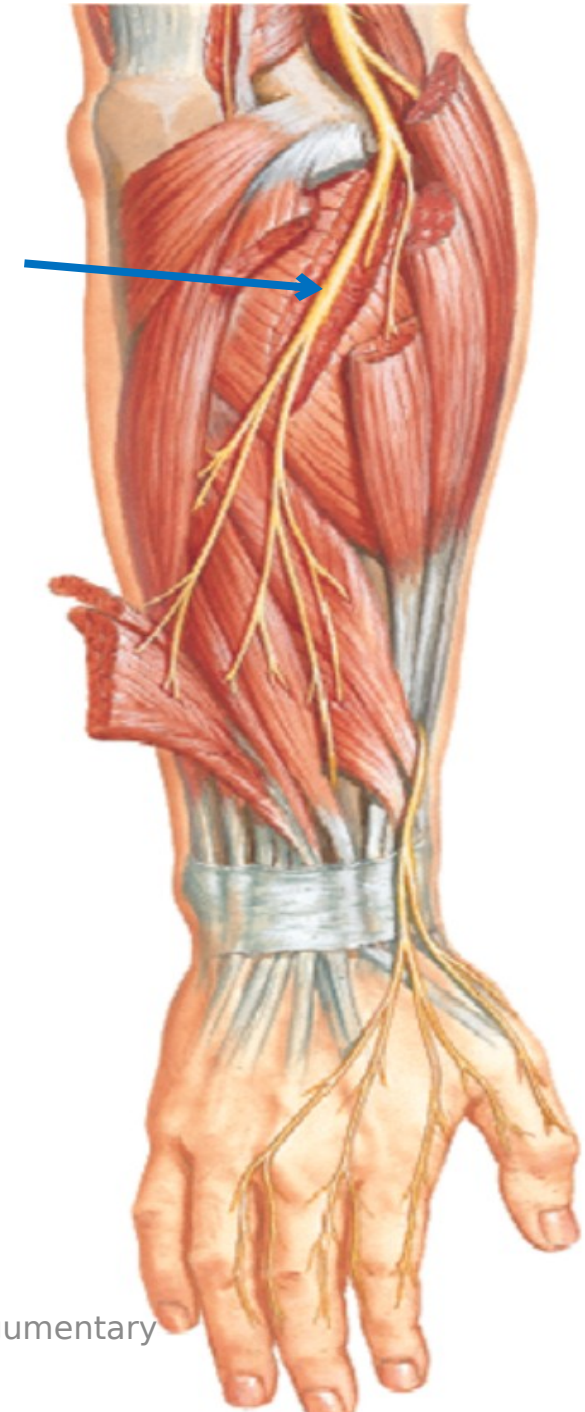


Deep terminal branch =
Posterior interosseous n.

Superficial terminal branch



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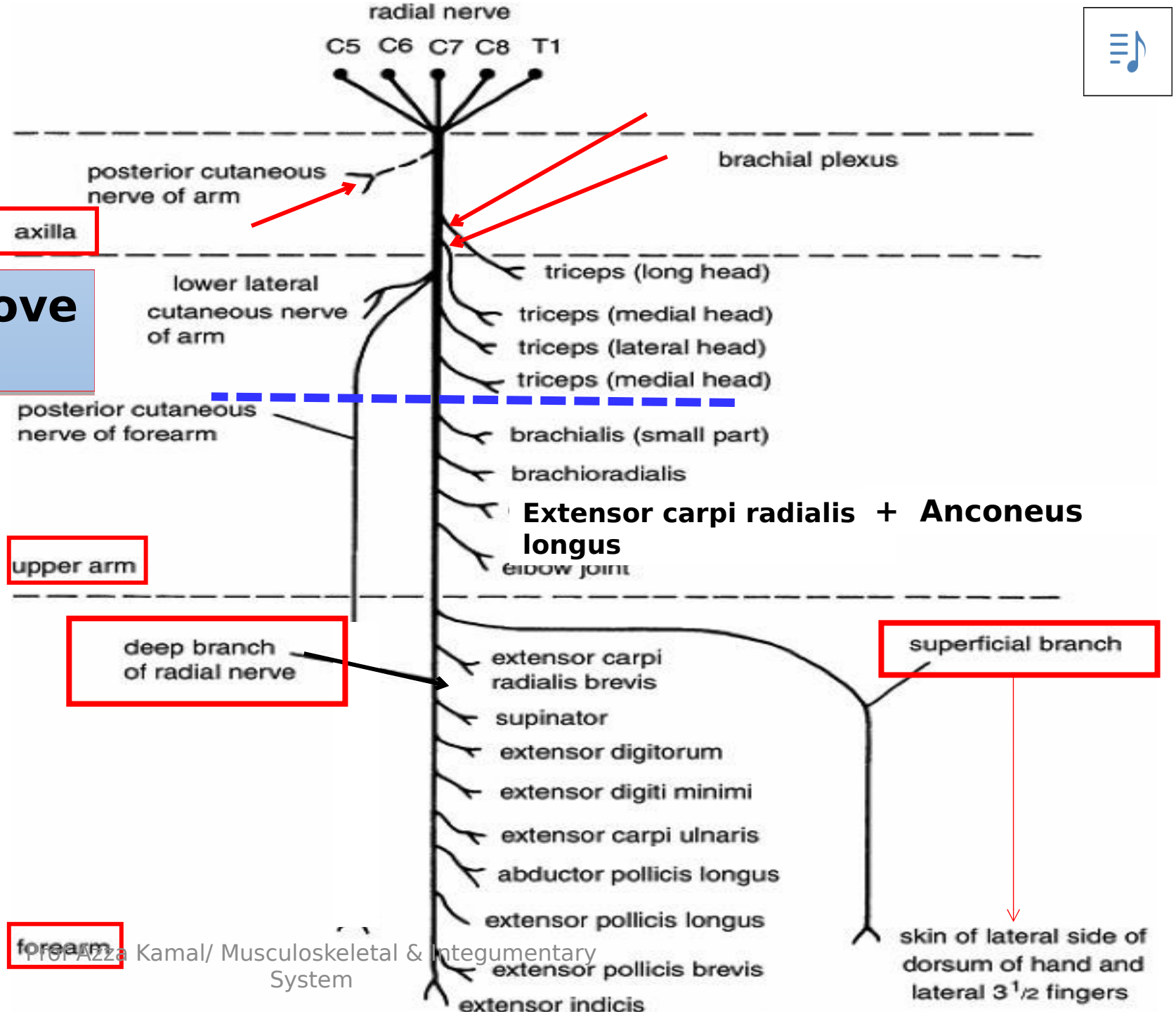
Branches In Axilla (L & M + 1 skin)

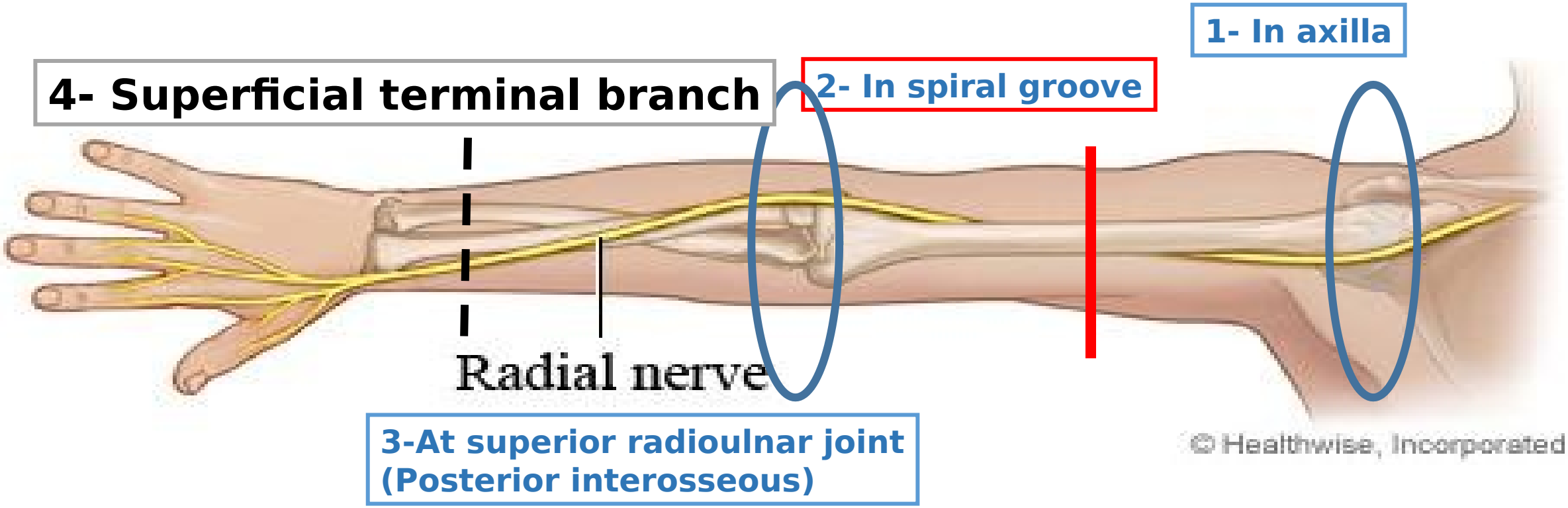
Branches in Spiral groove (L & M + 2skin)

Branches in Groove between Brachialis & brachioradialis (Exceptions lat part brachialis+ brachioradialis+ anconeus+ ECRL)

terminal brs)



ill discuss injury of the radial nerve at:



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Injury of radial nerve

In axilla

- **Cause of injury**

Crutch Palsy).

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(**Saturday night's palsy** or sleep palsy).

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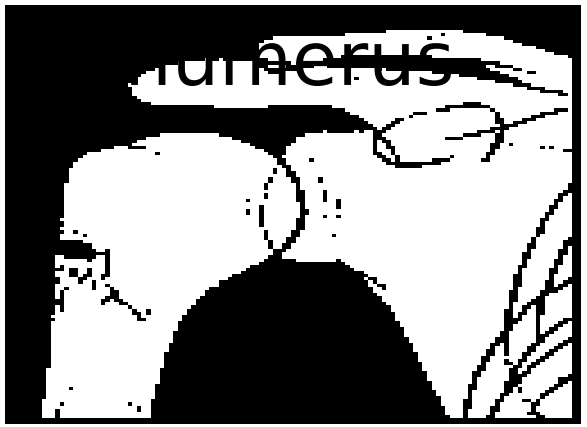
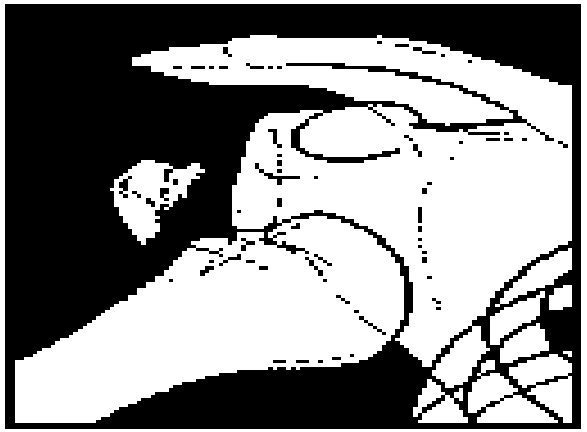
Fracture & dislocation of the proximal end of the





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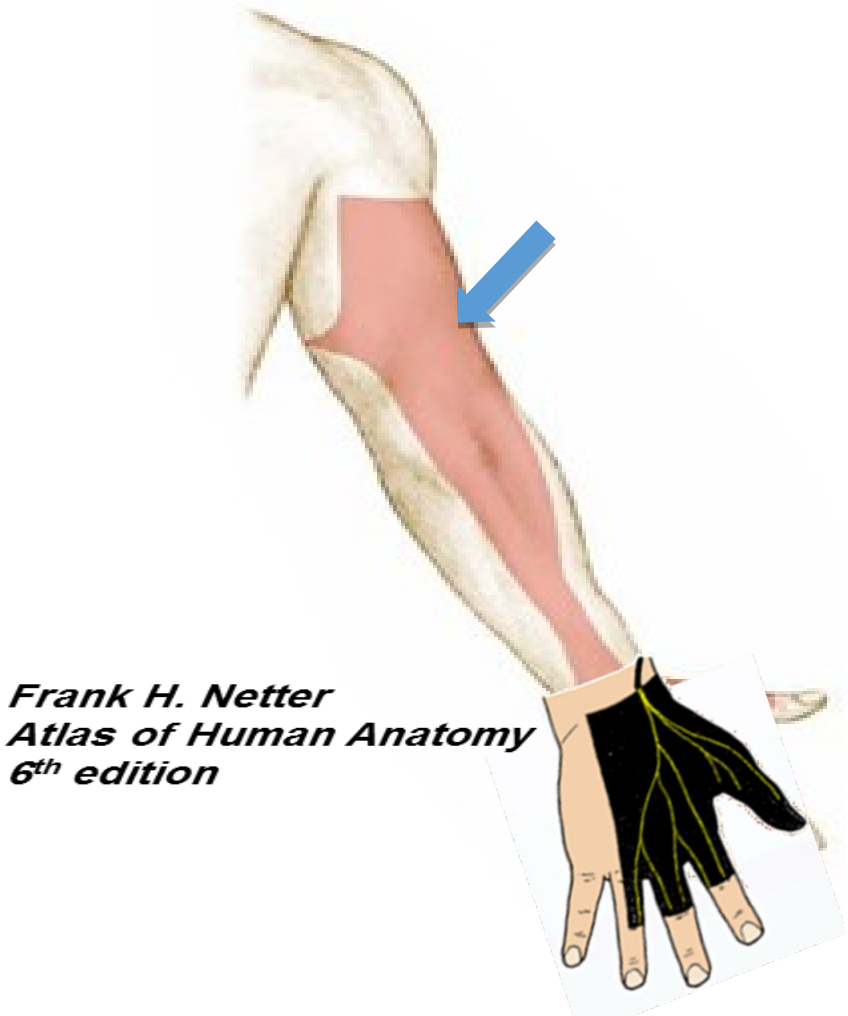
Injury of radial nerve in axilla

Sensory loss:



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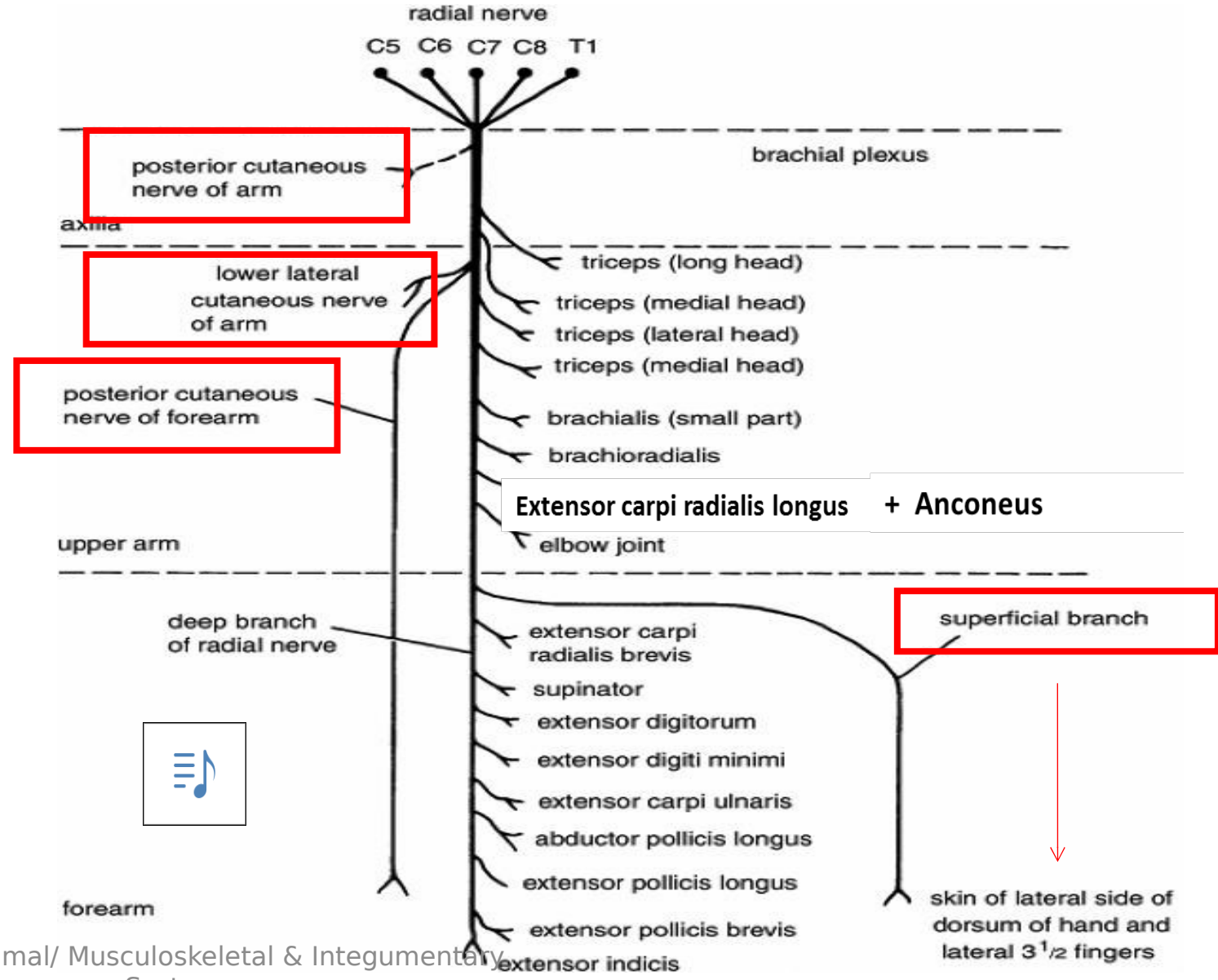
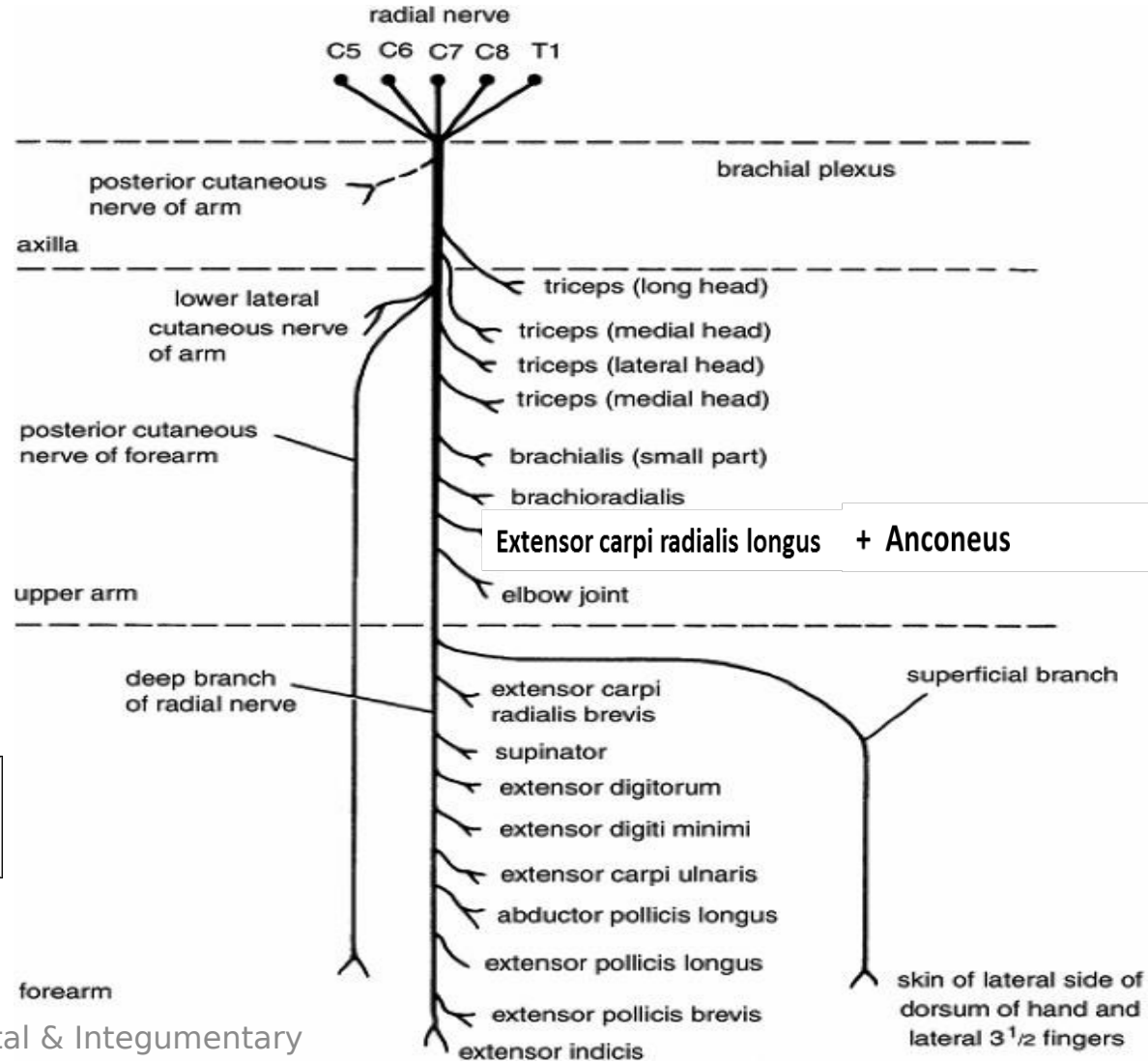


Injury of radial nerve in axilla

Motor effects:

- **Paralysis of triceps and anconeus → *loss of extension of elbow however elbow can be extended by gravity***
- **Paralysis of brachioradialis and supinator → *weakness of supination but it is not lost ? → biceps can supinate***
- **Paralysis of long extensors of wrist and fingers → *wrist drop and fingers drop.***

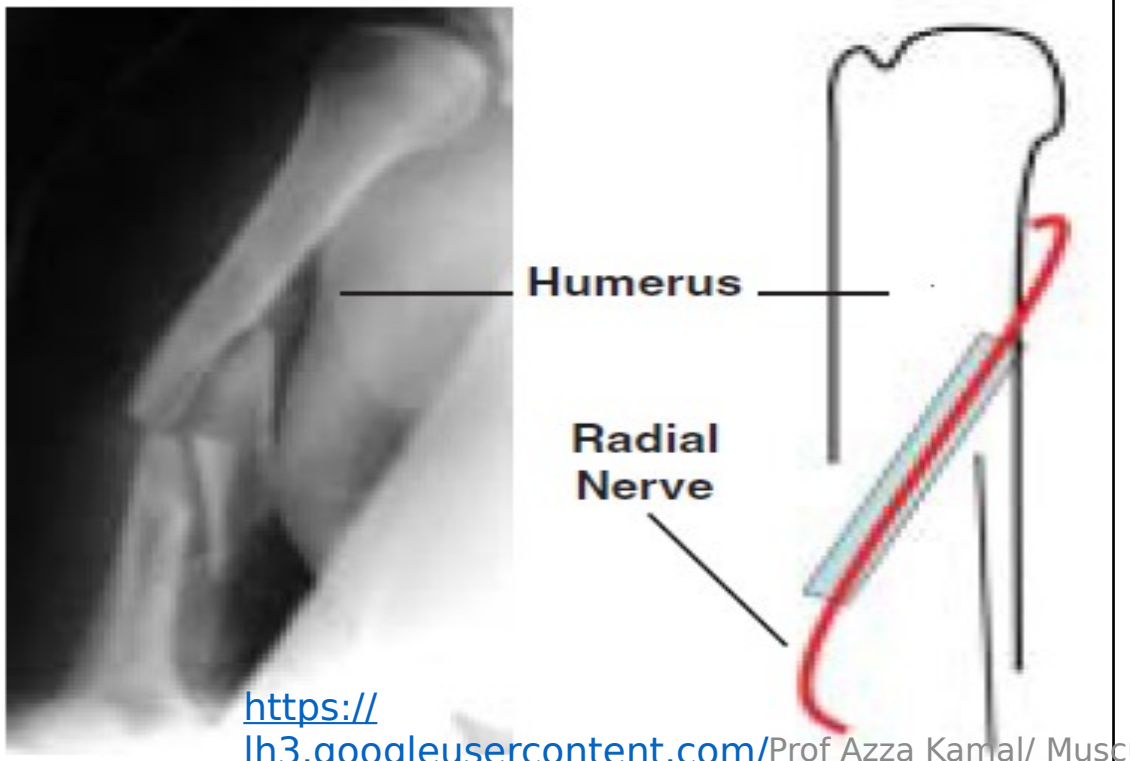


This leads to the deformity known as wrist drop& finger drop .

Injury of radial nerve in spiral groove

Causes of injury:

1- Fracture of the middle of the shaft of the humerus.



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2-Using a tourniquet to the arm for a long time.

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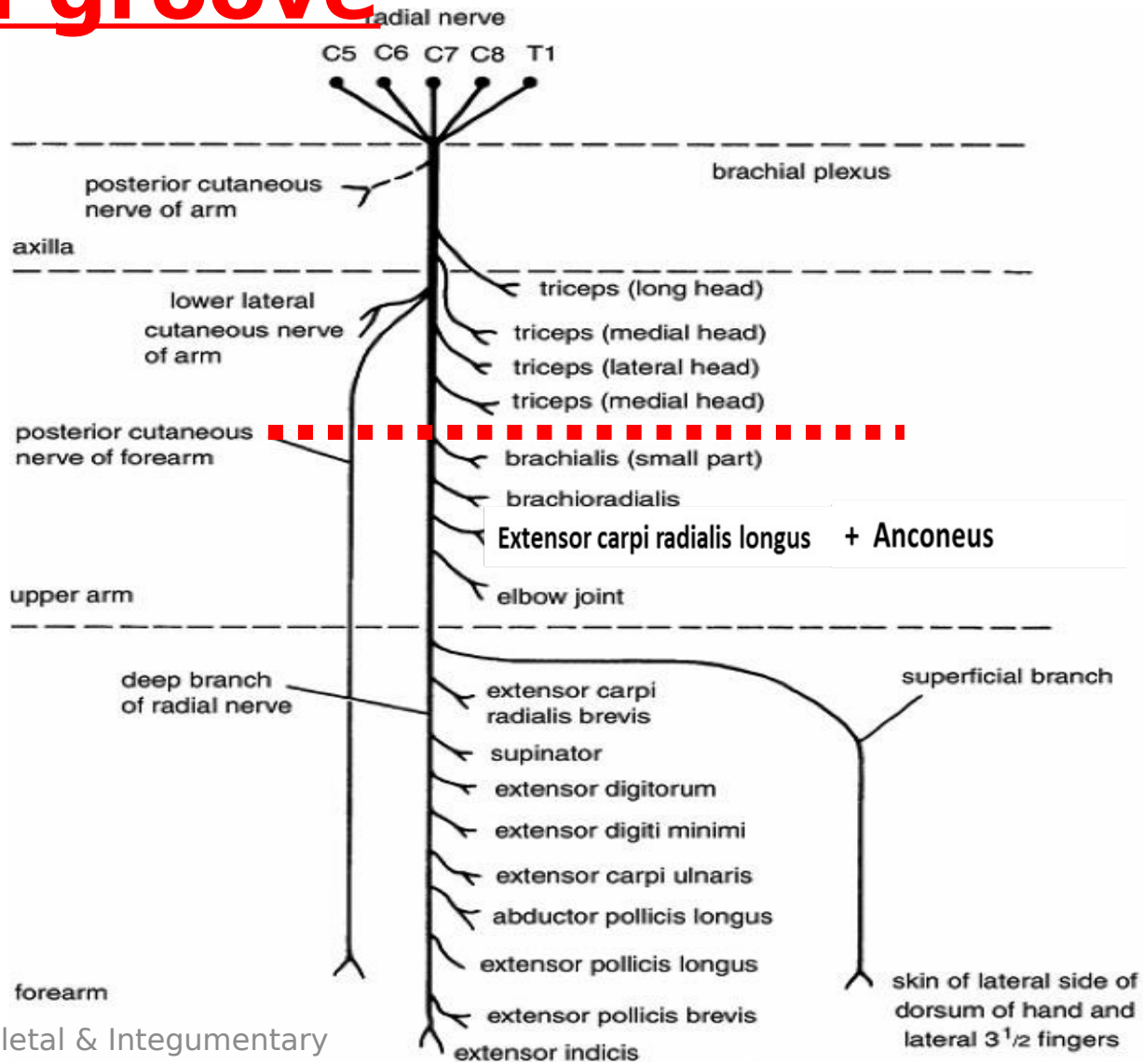
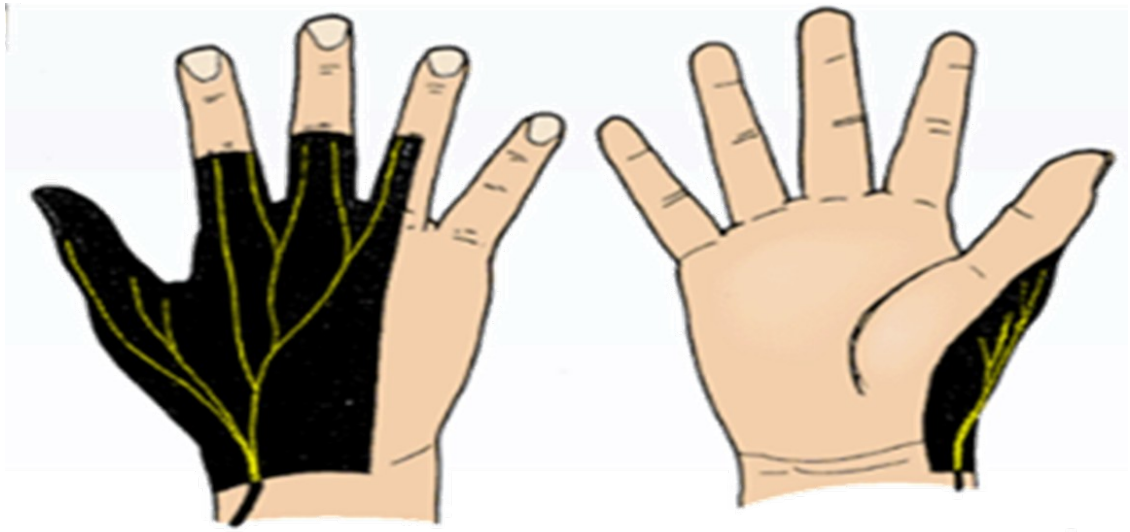
Injury of radial nerve in spiral groove

Motor effects:

- **Paralysis of brachioradialis and supinator *weakness of supination but it is not lost***
- **Paralysis of long extensors of wrist and fingers *wrist drop and fingers drop***
- **Triceps is not paralyzed**



Sensory loss:



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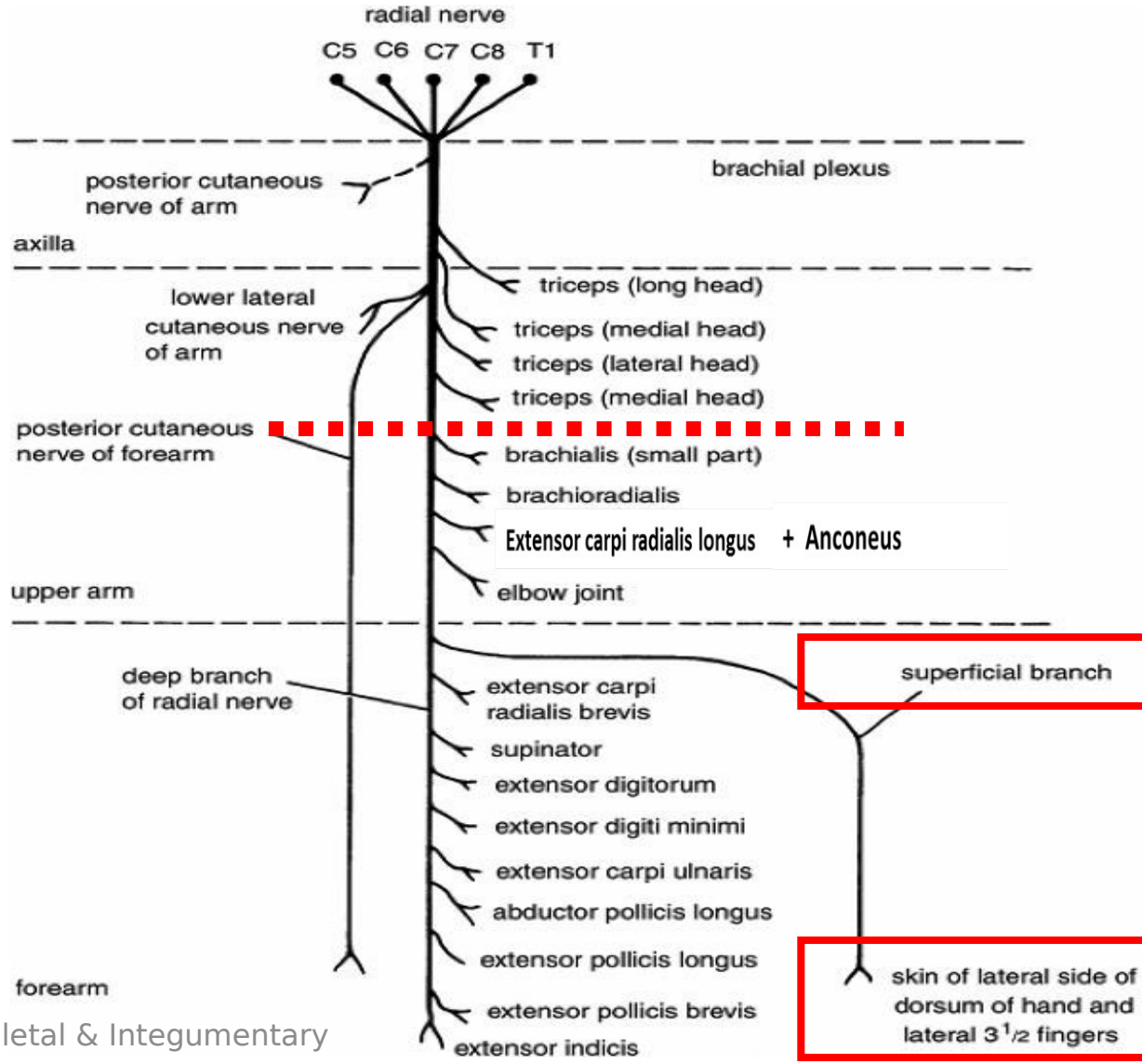
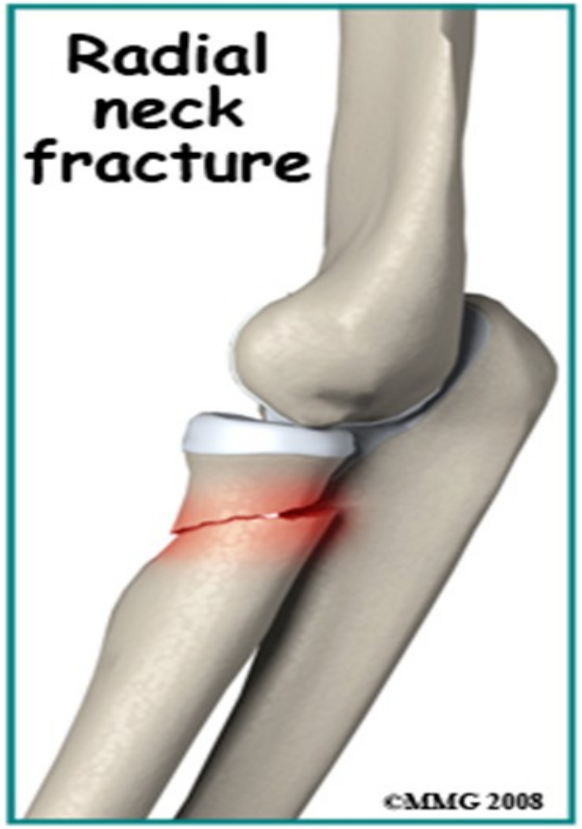


esion at superior radioulnar joint

- Injury of deep terminal branch of radial nerve
  (Posterior interosseous nerve)

Causes of injury

1- Fracture of proximal end of radius.
2- Dislocation of head of radius.



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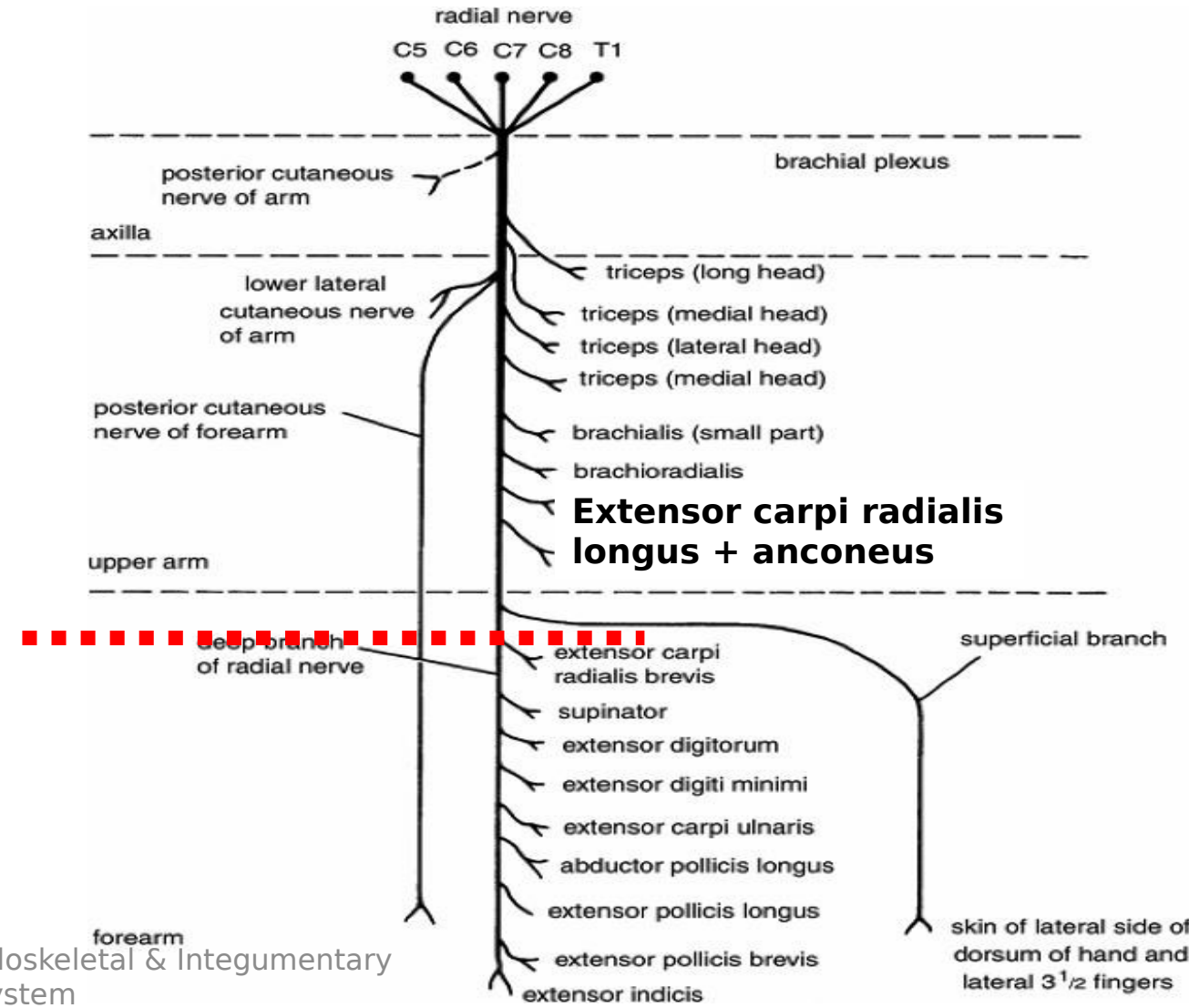
Injury of deep terminal branch of radial nerve
(Posterior interosseous nerve)

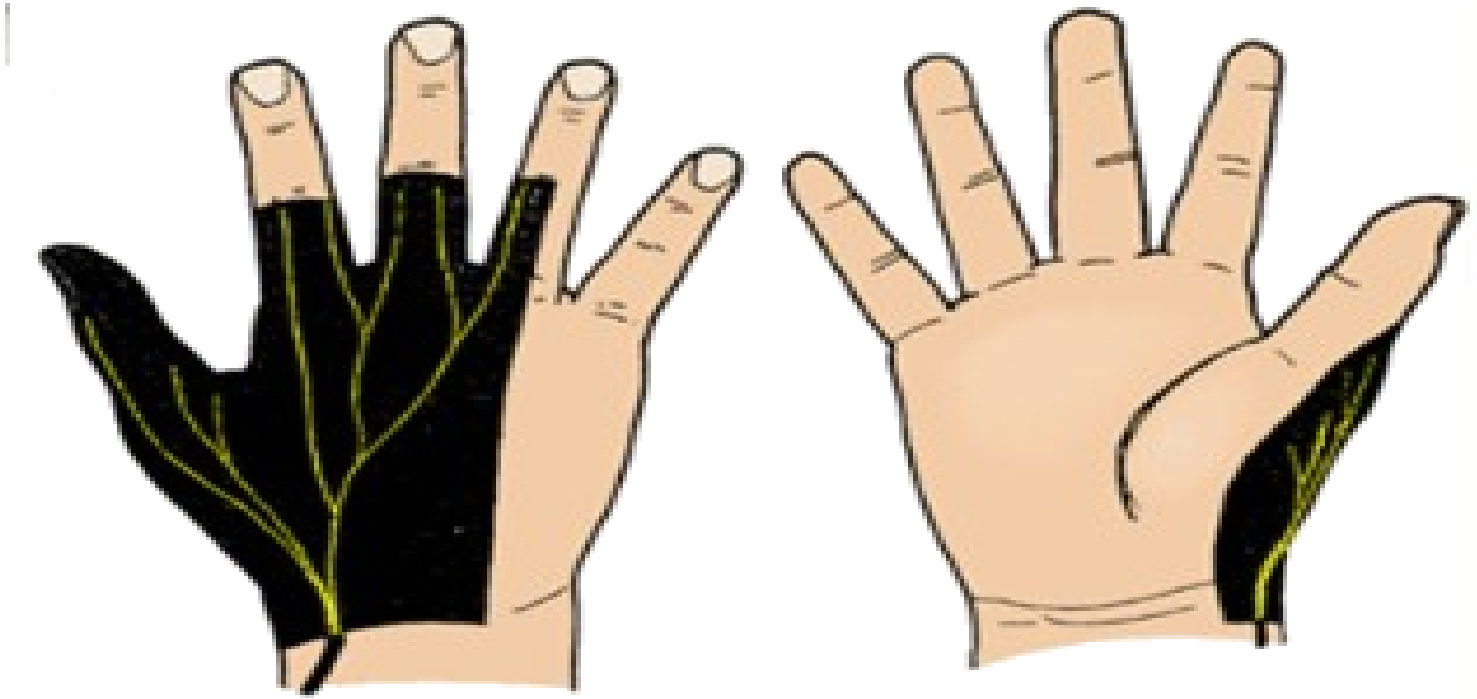
Motor effects:

- **Paralysis of muscles of the back of forearm , except brachioradialis, extensor carpi radialis longus and anconeus *finger drop***
- **Extensor carpi radialis longus can produce extension of the wrist *wrist drop***



Injury of superficial terminal branch of radial n

Sensory loss……



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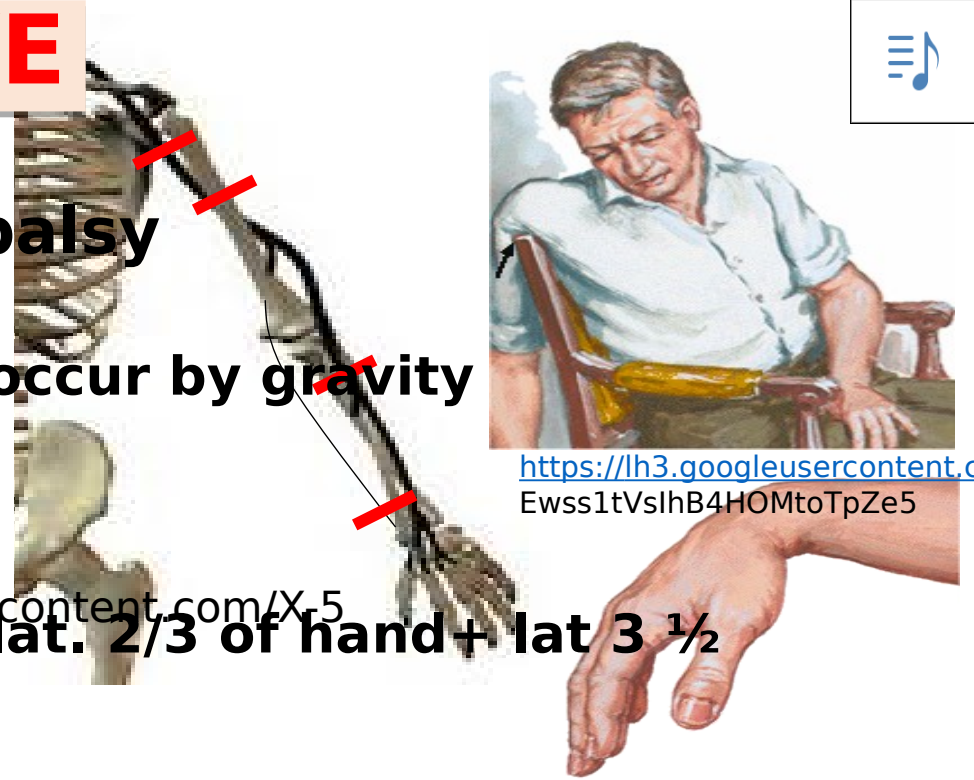
LESIONS OF RADIAL NERVE

- **In axilla**
  - **Cause: crutch palsy - Saturday night palsy**
  - **Effects**
  - **Total loss of elbow extension however it can occur by gravity**
  - **Wrist drop & finger drop**
  - **Sensory loss at:**
    - **Back of arm & forearm**
    - **Lower lat. aspect of arm + dorsum of (lat. 2/3 of hand+ lat 3 ½ fingers)**



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- **In spiral groove**
  - **Causes: midshaft fracture humerus**
  - **Effects: wrist drop & finger drop but there is extension of elbow since triceps received its nerve supply**
- **Injury of post. interosseous n**
  - **Cause: fracture neck of radius**
  - **Effects: finger drop but no wrist drop since ECRL received its ns**

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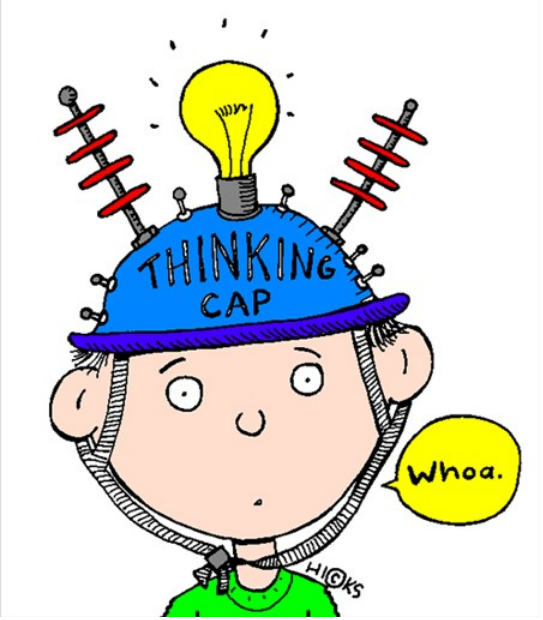
- **Injury of superficial terminal br of radial n**
  - **Cause: stab wound**

The thumb action that could be totally affected by a radial nerve lesion is:

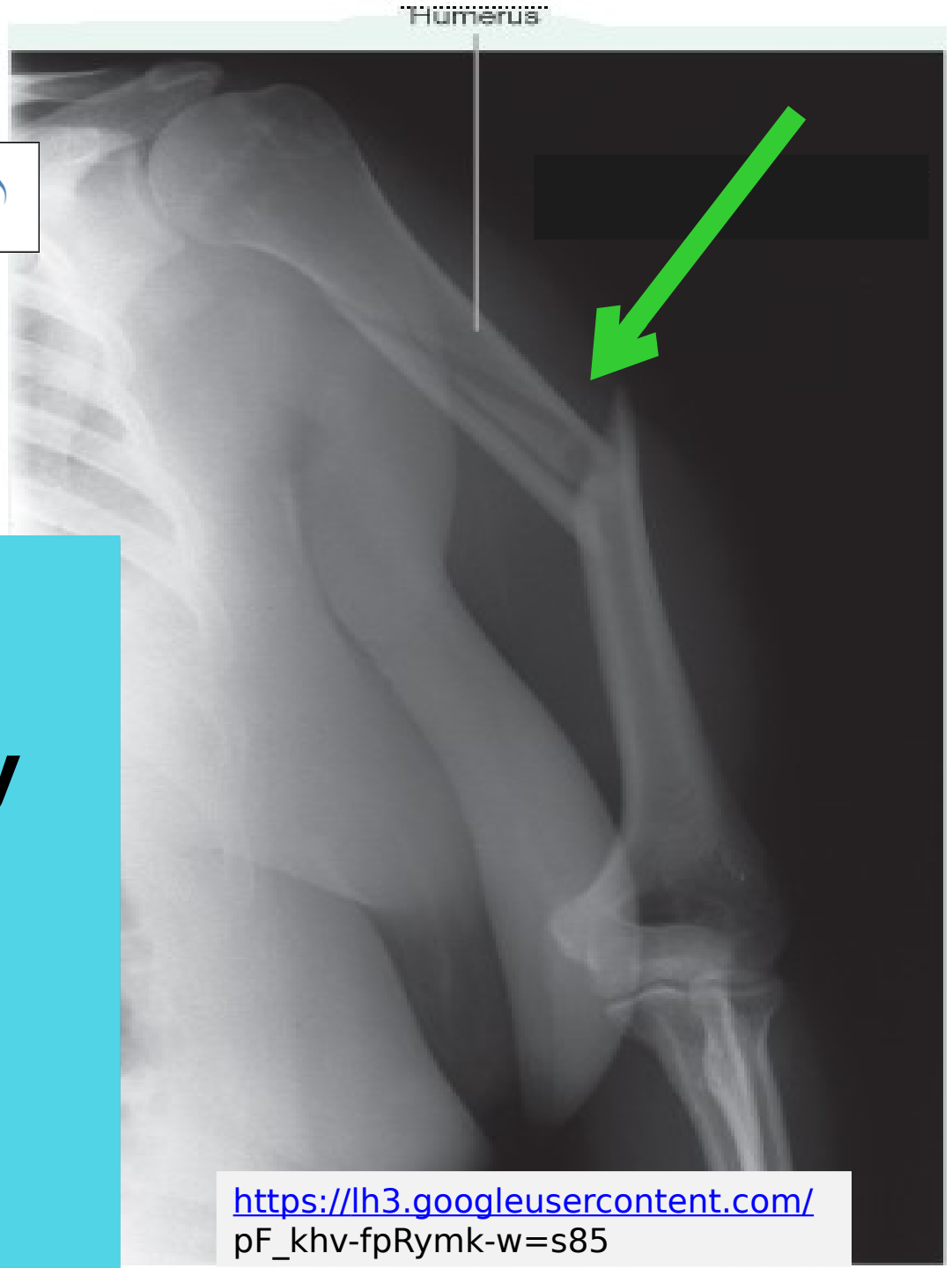
A. abduction
B. adduction
C. extension
D. flexion
E. opposition



- How can you differentiate median, ulnar & radial nerve injuries by testing the **thumb movement only**?
- With 3 **pin pricks** how can you differentiate median, ulnar & radial nerve injuries?

Radial Nerve

What is the nerve likely to be injured in this X RAY ? (Midshaft fracture)



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Wrist drop and finger drop is a deformity caused by injury of which of the following nerves?

A.Ulnar

B.Median

C.Anterior interosseous

D.Radial

E.Axillary

Suggested Textbook:
Clinical Anatomy for Medical Students
Richard S. Snell/ Third Edition